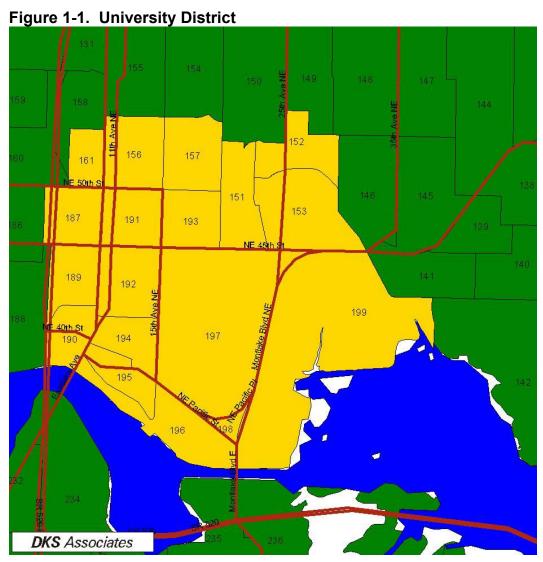
University District

1.0 Setting and Physical Characteristics

1.1 Location

The University District is located in north Seattle; it contains the campus of the University of Washington. The study area boundaries are similar to the area's regionally designated Urban Center boundary. It is bordered to the south by Union Bay and Portage Bay and to the west by I-5. The eastern border is defined by the eastern edge of campus, Union Bay Place NE, and 30th Avenue NE. The northern border of this district follows this path from west to east: NE 55th Street, then north along Roosevelt Way to NE 56th Street to NE Ravenna Boulevard, south along 21st Avenue NE to NE 54th Street, then north along 25th Avenue NE to NE 57th Street, south along 27th Avenue NE to NE 55th Street. The case study area boundaries are illustrated in Figure 1-1.



University District Case Study

1.2 Land Use Character and Mix

The four counties of the Central Puget Sound Region contain 21 designated Urban Centers that are focal points for jobs, housing, and culture. Five of these 21 Urban Centers are in the City of Seattle, and one is the University Community Urban Center, also known as the University District. The University District contains within it two Urban Villages as designated by the City of Seattle: The University District NW Urban Village and the Ravenna Urban Village. In the City of Seattle's Comprehensive Plan, Urban Villages are primary locations of future residential and employment growth.

1.3 Access to Freeways and State Facilities

One state route (a surface road), SR 513, runs through the case study area. Two other freeways are nearby, I-5 and SR 520.

SR 513. This road follows Montlake Boulevard NE from SR 520 to NE 45th Street, where it then follows to the right along NE 45th Street. It turns to the left in order to follow Sand Point Way NE out of the study area. This roadway is useful for travelers both entering and leaving the study area.

I-5. This interstate highway runs just west of the study area and follows in the north-south direction from Canada down to Mexico. Locally, it runs from the northern King County, through downtown Seattle, to southern King County. For travelers to/from the University District, it provides for a wide range of destinations. Access to this freeway is provided from a mixture of 45th Street NE and 50th Street NE depending on the direction of the traveler.

SR 520. This highway is just south of the study area and provides access to the Bellevue, Kirkland, and Redmond areas, as well as other parts of eastern King County.

1.4 Roadway Network

The major gateways into the University District are the Montlake and University Bridges to the south, NE Pacific Street and North 45th Street from the west, 28th Avenue NE and Ravenna Boulevard from the north, and Sandpoint Way NE from the East.

1.5 Transit Services

The existing and future transit service levels are discussed in the following sections.

1.5.1 Existing Transit Service

Route 7 services University District, Capitol Hill, Broadway, Downtown Seattle, International District, Rainier Valley, Columbia City, and Rainier Beach. This route operates seven days a week and has an AM peak hour headway of 9 minutes.

Route 9 services University District, Capitol Hill, Broadway, First Hill, Rainier Valley, Columbia City, and Rainier Beach. This route operates seven days a week and has an AM peak hour headway of 30 minutes.

Route 25 services Downtown Seattle, Eastlake, Montlake, the University Village, Children's Hospital, and Laurelhurst. This route only operates on weekdays and has an AM peak hour headway of 20 minutes.

Route 43 services Downtown Seattle, Capitol Hill, Group Health Hospital, Montlake, the UW Campus, and the University District. This route operates seven days a week and has an AM peak hour headway of 12 minutes.

Route 44 services Government Locks, Ballard, Wallingford, the University District, the UW Campus, and Montlake. This route operates seven days a week and has an AM peak hour headway of 10 minutes.

Route 48 services Loyal Heights, Crown Hill, Greenwood, Ravenna, the University District, Montlake, Central District, Columbia City, and Rainier Beach. This route operates seven days a week and has an AM peak hour headway of 8 minutes.

Route 64 services Downtown Seattle, the Green Lake Park and Ride, Ravenna, Wedgwood, and Lake City. This route operates on weekdays and has an AM peak hour headway of 15 minutes.

Route 65 services the University District, UW Campus, University Village, Ravenna, Wedgwood, and Lake City. This route operates seven days a week and has an AM peak hour headway of 15 minutes.

Route 66 services the Coleman Dock-Ferry Terminal, Downtown Seattle, Eastlake, the University District, Maple Leaf, the Northgate Transit Center, Northgate Mall, and the Northgate Park and Ride. This route operates seven days a week and has an AM peak hour headway of 20 minutes.

Route 67 services UW Campus, the University District, Maple Leaf, the Northgate Transit Center, and the Northgate Mall, Northgate Park and Ride. This route operates seven days a week and has an AM peak hour headway of 15 minutes.

Route 70 services Downtown Seattle, Fairview Ave N, Eastlake, and the University District. This route operates on weekdays and Saturdays with an AM peak hour headway of 12 minutes.

Route 71 services Downtown Seattle (Tunnel), Eastlake, the University District, Ravenna, View Ridge, and Wedgwood. This route operates seven days a week and has an AM peak hour headway of 12 minutes.

Route 72 services Downtown Seattle (Tunnel), Eastlake, the University District, Maple Leaf, and Lake City. This route operates seven days a week.

Route 73 services Downtown Seattle (Tunnel), Eastlake, the University District, the Green Lake Park and Ride, Maple Leaf, and Jackson Park. This route operates seven days a week and has an AM peak hour headway of 12 minutes.

Route 74 services Downtown Seattle (peak hours only), the Seattle Center, Fremont, Wallingford, the University District, Ravenna, Sand Point, and NOAA. This route operates seven days a week.

Route 75 services the University of Washington, Sand Point, Lake City, Northgate Mall, the Northgate Transit Center, North Seattle Community College, Crown Hill, and Ballard. This route operates seven days a week and has an AM peak hour headway of 12 minutes.

Route 197 services the University District, the Kent-Des Moines Freeway Station, the Star Lake Freeway Station, the Federal Way Transit Center, the Sea-Tac Mall, and the South Federal Way Park and Ride. This route operates on weekdays and has an AM peak hour headway of 15 minutes.

Route 271 serves the Issaquah Park and Ride, Eastgate, the Eastgate Park and Ride, Bellevue Community College, the Bellevue Transit Center, and the University District. The weekday and Saturday headway is 30 minutes and the Sunday headway is 60 minutes.

Route 355 services Downtown Seattle, the University District, Greenwood, and the Shoreline Community College. This route operates on weekdays and has an AM peak hour headway of 12 minutes.

Route 372 services the University District, the University Village, Ravenna, Wedgewood, Lake City, Lake Forest Park, the Northshore Park and Ride, the Kenmore Park and Ride, the Bothell Park and Ride, and the Woodinville Park and Ride. This route operates on weekdays and has an AM peak hour headway of 15 minutes.

Route 855 is an external link, servicing the Lynnwood Park and Ride, the University District, and the UW Campus. This route operates on weekdays and has an AM peak hour headway of 15 minutes.

1.5.2 Forecast Transit Service for 2030

The PSRC/Trans-Lake model was used to forecast the number of transit routes in the case study area for both the base and future conditions. Table 1-1 lists the number of routes by type (rail, ferry, high frequency bus service, and low frequency bus service), while Table 1-2 lists the frequency of service for each transit type.

In the future, a rail line is expected to serve the University District. The rail line, along with a large number of additional high frequency bus routes, will mean a substantial increase in transit service to the area.

Table 1-1. Number of Routes

Time Period	Year	Rail	Ferry	High Bus	Low Bus	Total
AM Peak	2000			3	74	77
	2030	1		25	19	45
Mid-Day	2000			1	69	70
	2030	1		12	18	31

Table 1-2. Frequency of Service (buses per hour)

Time Period	Year	Rail	Ferry	High Bus	Low Bus	Total
AM Peak	2000			13	117	131
	2030	12		146	41	199
Mid-Day	2000			4	104	108
	2030	8		56	46	110

1.6 Parking Supply, Availability and Price

The Seattle Comprehensive Neighborhood Parking Study lists both the parking supply and utilization for parts of the University District study area as shown in Table 1-3. This study did not cover the entire study area, but rather, just three parts of the study area: the University District, Greek Row, and the West Residential area.

Table 1-3. On-Street and Off-Street Parking Supply and Utilization

	University	Greek Row	West
	Way		Residential
Parking Supply			
On-Street	323	452	240
Off-Street	1,280	1,191	1,573
Loading	77	49	14
Total:	1,680	1,692	1,827
Average Parking Usage	•		
On-Street	57%	93%	77%
Off-Street	47%	32%	60%
Total:	49%	49%	63%
Peak Hour Parking Usage	;		
On-Street	70%	96%	83%
Off-Street	64%	36%	72%
Total:	63%	53%	73%
Source: Comprehensive Neighborho	od Parking Study, Aug	ust 2000	

The parking data shown in Table 1-3 is only for parts of the University District. Based on this information, and data available from the Seattle travel demand model, parking for the rest of the study area was estimated. The parking supply and demand for the entire case study area that was used within the TEEM model is shown in Table 1-4.

In the University District, University of Washington parking data is available from the UW's Transportation Office. The University District Parking Associates (UDPA) is a parking operator for the U-District businesses/neighborhood and they charge for the surface parking lots that they manage (about 2300 spaces in a 1997 study). Safeco Insurance, another large employer in the study area, also has paid parking.

¹(a) The Puget Sound Regional Council conducted parking studies in downtown Bellevue and Seattle in 1999 and published the results in <u>Parking Inventory for Seattle and Bellevue</u>, 1999, (May 2000). This report was used to compile information for Downtown Bellevue, and portions of Wallingford and South Lake Union.

⁽b) The City of Seattle Strategic Planning Office conducted neighborhood parking surveys in Comprehensive Neighborhood Parking Study—Final Report (August 2002). The report included much of the on-street and off-street parking in the University District, Wallingford and South Lake Union. The report was used to generate numbers for this analysis. In addition, Mirai Associates counted the few locations not included by the City of Seattle survey to obtain a full count of the specified study areas.

⁽c) University Community Urban Center Plan: Existing Transportation Conditions and Recommended Transportation Projects, (September 1998), Transportation Solutions, Inc. and Rolfe Kellor Associates. This report was used for the majority of non-University parking in the University District.

⁽d) The University of Washington Transportation Office provided parking inventory and utilization information for the University of Washington parking lots.

Table 1-4. Parking Supply and Demand by	y Type
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		Parking Type					
	Retail	Office	Other	Total			
2000 Supply	3,335	1,576	12,712	17,623			
2000 Demand	1,629	1,008	10,542	13,179			
2000 D/S Ratio	0.49	0.64	0.83	0.75			
2030 Supply	-			20,439			
2030 Demand	13,845						
2030 D/S Ratio				0.68			

When collecting parking costs, the PSRC/Trans-Lake baseline model assumes a relatively high parking cost in many parts of the region. Then, in the application of the model, parking costs are lowered for many users to reflect the many users that don't pay the full price of parking. In the application of TEEM, the forecast parking costs were assumed to be one-half of the baseline PSRC/Trans-Lake model to account for people whose parking costs are subsidized. The resulting parking costs are shown in Table 1-5.

Table 1-5. Average Parking Costs

	Parking	Costs
	2000	2030
Drive Alone	\$3.79	\$9.21
Carpool	\$1.52	\$3.68
Vanpool	\$0.00	\$0.00

1.7 Pedestrian and Bicycle Facilities

Outside of the University of Washington, the University District study area was designed in a grid format, allowing for good pedestrian access to the nearby amenities. The sidewalk network within the study is almost totally complete.

There are several bike trails, bike lanes and arterial streets that are commonly used by bicyclists in the University District. The main east-to-west trail is the Burke-Gilman Trail that heads through the center of the campus and connects up with the University Bridge and neighborhoods to the west and the Montlake Bridge. Portions of Walla Walla Road NE and NE Canal Road (which run through the University of Washington Campus) also have a bike trail. In addition, Sandpoint Way NE, 17th Avenue NE and Brooklyn Avenue NE are arterial streets that are commonly used by bicyclists.² Bike lanes are also located on Ravenna Boulevard, N. 40th Street, and Brooklyn Avenue.

There are several pedestrian/cyclist barriers in the University District, most of which occur when entering or leaving the study area. The lack of nonmotorized access across SR 520 is a significant barrier for those who are traveling to the east side of Lake Washington. All of King County Metro's buses are equipped for carrying bicycles, so cyclists can get across the bridge – however, there is a two bike per bus maximum and during peak hours in the summers the wait to get a bike on the bus can be quite long.

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² Seattle Bicycling Guide Map, Seattle Transportation, Bicycling and Pedestrian Program, Summer 2000

In addition, there are many high-traffic streets in the area (caused, in part, by traffic backups and access onto 520 and I-5) – NE Pacific, Montlake Blvd., Sand Point Way, and 45th Street. I-5 also forms a partial barrier to the west of the study area, forcing cyclists/pedestrians either to cross underneath the freeway at 40th street/NE Pacific or over it at 45th Street.

2.0 Population and Employment Characteristics

Population and employment data for the University District are discussed below.

2.1 Population

The population of the University District is expect to increase by nearly 6000 people over the next thirty years (See Table 2-1).

Table 2-1. Background Model Information

	2000	2030
Size (sq. miles)	1.7	72
Population	19,222	25,507

2.2 Employment

The total employment and the mix of employment are expected to remain relatively constant over the next thirty years. The employment forecast for the area includes almost one thousand new employees. These additional employees are fairly well distributed by both employment type and size of employer, with more "office" type employment and a few less "other" employees (University Employees are defined as "Other"). (See Table 2-2 and Table 2-3).

Table 2-2. Employment by Type

•	Model Em	ployment
	2000	2030
Retail	3,850	4,705
Office	5,814	7,230
Other	25,253	23,860
Total	34,917	35,796

Table 2-3. Employee Data by Size of Employer

		Number of Employees						
	0-49	50-99 100-499		500+	Total			
2000	5,291	1,607	155	27,864	34,917			
2030	5,424	1,647	159	28,565	35,796			

2.3 Characteristics by Transportation Analysis Zone (TAZ)

Table 2-4 lists the transit level of service definitions that were used for each TAZ, while Table-2-5 illustrates the changes in land use characteristics that are expected for each TAZ in the University District. Transit Service is already high throughout the area, and is forecast to become even better over

the next thirty years. In general, the mix of uses in the area is forecast to become slightly lower, while density is expected to increase in many of the zones.

Table 2-6 gives the population, employment and trips by local area TAZ for the University District. These characteristics were described in earlier sections.

Table 2-7 shows that in the future most of the population and employment will be in zones that are better serviced by transit.

Table 2-4. Transit Level of Service Definitions

Transit Service	Definition				
High 1	At least one (1) rail route or five (5) or more high frequency routes				
High 2	Four (4) high frequency routes or at least fifteen (15) total routes				
Medium 1	Three (3) high frequency routes or at least ten (10) total routes				
Medium 2	Two (2) high frequency routes or at least five (5) total routes				
Low 1	At least two (2) total routes				
Low 2	Less than two (2) total routes				

Table 2-5. Land Use Characterizations by Local Area TAZ

	Transit	Service	Mixed	d-Use	Density		
TAZ	2000	2030	2000	2030	2000	2030	
151	High 2	High 1	Medium	Medium	Medium	High	
152	Medium 2	Medium 2	Medium	Medium	Medium	Medium	
153	High 2	High 1	Medium	Medium	Medium	High	
156	High 2	High 1	Medium	Medium	High	High	
157	High 2	High 1	Medium	Medium	Low	Low	
161	High 2	High 1	High	Medium	Low	Low	
187	High 2	High 1	High	High	Medium	High	
189	High 2	High 1	High	High	Medium	High	
190	High 2	High 1	High	High	Low	Medium	
191	High 2	High 1	High	High	High	High	
192	High 2	High 1	High	High	High	High	
193	High 2	High 1	High	Medium	Low	High	
194	High 2	High 1	High	Medium	Medium	High	
195	High 2	High 1	Medium	Low	Medium	Low	
196	High 2	High 1	Low	Low	Low	Low	
197	High 2	High 1	Low	Medium	Low	Low	
198	High 2	High 1	Low	Low	High	High	
199	High 2	High 1	Low	Low	Low	Low	

Table 2-6. Population, Employment and Trips by Local Area TAZ

			Population and Employment					Home	Based W	ork Pers	on Trips	
	Area	Popul	lation	Re	tail	Oth	ner	Productions		Attra	Attractions	
TAZ	miles	2000	2030	2000	2030	2000	2030	2000	2030	2000	2030	
151	0.075	2,165	3,014	0	0	65	92	1,223	1,947	135	170	
152	0.067	1,352	1,495	202	181	204	315	764	966	538	518	
153	0.125	882	1,344	772	1,553	373	493	498	868	1,436	2,838	
156	0.080	2,322	2,958	129	227	322	327	1,854	2,888	569	1,222	
157	0.080	1,168	1,201	0	0	54	68	932	1,172	94	160	
161	0.039	389	446	25	39	132	47	337	487	179	499	
187	0.064	792	1,313	115	200	329	700	672	1,168	585	1,531	
189	0.058	1,847	2,583	101	185	109	203	1,566	2,298	347	957	
190	0.049	425	1,002	34	55	125	217	360	892	217	571	
191	0.064	1,274	2,109	919	1,023	903	922	693	1,248	2,266	4,501	
192	0.081	3,694	3,467	1,095	1,000	3,043	3,856	2,010	2,052	4,983	8,318	
193	0.063	762	2,107	2	2	187	214	415	1,247	237	503	
194	0.051	1,314	2,372	47	59	62	44	210	1,373	571	803	
195	0.044	739	33	162	0	6	6	118	19	618	752	
196	0.098	97	65	50	30	307	127	16	37	2,607	3,665	
197	0.332	0	0	96	34	51	166	0	0	40,700	36,397	
198	0.011	0	0	7	0	24,748	23,274	0	0	49,881	69,314	
199	0.388	0	0	94	118	47	21	0	0	1,053	348	

Table 2-7. Population Employment by Transit Service

		Transit Service Level						
	High 1	High 2	Medium 1	Medium 2	Low 1	Low 2	Total	
Transit Service	2000	0	17	0	1	0	0	18
(# of zones)	2030	17	0	0	1	0	0	18
Population	2000	0	17,870	0	1,352	0	0	19,222
	2030	24,013	0	0	1,495	0	0	25,507
Total	2000	0	34,511	0	406	0	0	34,917
Employment	2030	35,300	0	0	496	0	0	35,796

3.0 Travel Behavior Inventory

3.1 Person and Vehicle Trips

The person and vehicle trips for study area employees and residents are illustrated in Table 3-1. Although the area is expected to see almost 40,000 additional daily employee trips, the number of vehicle trips is expected to decrease by more than 4,000 trips. This is most likely attributable to the high level of transit service that is forecast for the base scenario, as well as the fact that the University of Washington (the area's major employer) is affected by the City of Seattle's Major Institutions Ordinance, which limits the number of vehicle trips that the University can bring into the area. This constraint has lead to very aggressive and effective TDM measures at the University of Washington.

Table 3-1. Daily Commute Trips

	Person Trips		Vehicle Trips		
	2000	2030	2000	2030	
Study Area Employee	107,016	133,066	58,090	55,660	
Employed Residents	11,666	18,661	7,749	8,614	

3.2 Vehicle Miles Traveled

The average vehicle miles traveled to work by University District employees is illustrated in Table 3-2. As one would expect, the vanpool users traveled much farther than the other modes, with drive alone and transit users traveling about the same distance.

Table 3-2. Average Vehicle Miles Traveled to Work by Mode

	Vehicle Miles		
Mode	Traveled to Work		
Drive Alone	11		
Carpool	14		
Vanpool	25		
Transit	12		
Non-Motorized	0		

3.3 SR 520 Corridor Trips

Almost 5 percent of the PM peak period vehicle trips to and from the University District cross the SR 520 bridge. As shown in Table 3-3, a higher percentage of vehicle trips entering the University District use the bridge, although trips leaving the study area contribute a higher total number of vehicles (i.e. over 3,300) to the bridge traffic. At 5,432, University District trips comprise 13.2 percent of total bridge traffic during the PM peak period.

Table 3-3. Study Area Vehicle Trips Related to SR 520 Corridor

	To the	From the	
	Study Area	Study Area	Total Trips
PM Peak Trips	25,174	89,993	115,168
Study Area Trips Crossing			
SR 520 Bridge	2,103	3,329	5,432
Percent of Case Study Trips			
Crossing SR 520 Bridge	8.4%	3.7%	4.7%

3.4 Average Vehicle Occupancy for Commute trips

The average vehicle occupancy for vehicle trips is shown in Table 3-4.

Table 3-4. Average Number of People per Vehicle

	Average		
	Number		
	of People		
Drive Alone	1.00		
Carpool	2.08		
Vanpool	8.76		

3.5 Historical CTR Mode Shares by Year

There are only two CTR employers in the University District that provided updates to the CTR database. The mode-split for these employers is shown in Table 3-5. Compared with other case study areas, the University District has a relative low drive-alone mode split.

Table 3-5. Mode Share for CTR Employers

		Mode Choice					
	Number of Employers		Carpool	Vanpool	Transit	Non- Motorized	Other
1993	. ,	49%	14%	11%	19%		1%
1995	2	53%	13%	11%	19%	3%	1%
1997	2	50%	14%	14%	18%	4%	1%
1999	2	50%	14%	13%	16%	6%	1%
2001	2	54%	12%	11%	16%	6%	1%

4.0 History with TDM and Land Use Strategies

Generally, the employers in Seattle are responsible for the CTR programs, and King County Metro plays a much larger role than the City of Seattle in terms of CTR program development.

Table 4-1 lists the percent of University District employers who stated that they either did or did not offer a TDM program.

The University of Washington is bound to the Major Institutions Ordinance, which has a significant trip reduction component The Major Institutions Ordinance originally prompted the U-Pass program, which gives the University of Washington students, faculty and staff additional resources to reduce the number of SOV trips. For a quarterly fee, members get the following benefits:

- Full fare coverage for Metro Transit, Community Transit, and Sound Transit buses
- Full fare coverage for Sounder commuter train service
- Free parking for carpools
- Free rides on the Night Ride Shuttle
- Subsidized vanpool fares
- Discounts at area businesses
- Guaranteed Ride Home
- Discounted occasional parking

There is also special pedestrian-oriented zoning in place along University Way. The City has implemented traffic calming measures (bus pullouts, curb bulbs, and midblock crosswalks) along University Way and is in the midst of more streetscape improvements.

Table 4-1. Percentage of CTR Employers Who Offer a Program

Table 4-1. Percentage of	CIKEM	ployers Who Offer a Program Year				
				1999	2001	
CWW Program	Yes	33%	33%	67%	33%	
CVVV Flogram	No	67%		33%		
Telecommuting	Yes	0%		67%		
releconinuting	No	100%		33%		
Flex Time	Yes	67%		100%		
TICK TIME	No	33%		0%	0%	
Guaranteed Ride Home	Yes	100%		100%	100%	
Cadramosa rado Homo	No	0%		0%	0%	
Ridematching Services	Yes	67%		67%	33%	
Traditioning Convices	No	33%		33%		
Shuttle Service	Yes	33%		33%		
	No	67%		67%		
Bike Subsidy	Yes	0%		0%		
,	No	100%		100%		
Walking Subsidy	Yes	0%		0%		
	No	100%		100%	67%	
Carpool Subsidy	Yes	67%	67%	33%	33%	
, ,	No	33%	33%	67%	67%	
Vanpool Subsidy	Yes	100%	67%	67%	67%	
	No	0%	33%	33%	33%	
Transit Subsidy	Yes	100%	100%	100%	100%	
	No	0%	0%	0%	0%	
Ferry Subsidy	Yes	33%	33%	33%	33%	
	No	67%	67%	67%	67%	
Gen. Transportation Allowance		0%		0%		
	No	100%		100%		
Clothes Locker	Yes	100%	100%	100%	100%	
	No	0%		0%	0%	
Uncovered Bicycle Parking	Yes	67%		100%		
	No	33%		0%	100%	
Covered Bicycle Parking	Yes	100%		67%		
	No	0%		33%		
Passenger Loading Area	Yes	67%		67%		
	No	33%				
Shower Facilities	Yes	67%		67%		
	No	33%	33%	33%	33%	